METHODS OF GENE EXPRESSION MONITORING IN SINGLE CELLS

ABSTRACT OF THE DISCLOSURE

The invention provides methods of monitoring expression of a plurality of genes in a cell or small population of cells. Preferred methods entail contacting an array of probes with a population of nucleic acids derived from a population of fewer than 1000

5   cells then determining the relative hybridization of the probes to the population of nucleic acid as a measure of the relative representation of genes from the cells.

The invention further provides methods of classifying cells. These preferred methods entail determining an expression profile of each of a plurality of cells then classifying the cells in clusters determined by similarity of expression profile.

10   The invention further provides methods of monitoring differentiation of a cell lineage. These preferred methods entail determining an expression profile of each of a plurality of cells at different differentiation stages within the lineage. These cells can then be classified into clusters determined by similarity of expression profile. The clusters can then be ordered by similarity of expression profile. A time course of

15   expression levels for each of the plurality of genes at different stages of differentiation in the cell lineage can then be determined.